

## **Tension-compression fatigue behavior of plain woven kenaf/kevlar hybrid composites**

### **ABSTRACT**

The applications of hybrid natural/synthetic reinforced polymer composites have been rapidly gaining market share in structural applications due to their remarkable characteristics and the fact that most of the components made of these materials are subjected to cyclic loading. Their fatigue properties have received a lot of attention because predicting their behavior is a challenge due to the effects of the synergies between the fibers. The purpose of this work is to characterize the tension, compression, and tensile-compression fatigue behavior of six layers of Kevlar hybridized with one layer of woven kenaf reinforced epoxy, at a 35% weight fraction. Fatigue tests were carried out and loaded cyclically at 60%, 70%, 80%, and 90% of their ultimate compressive stress. The results give a complete description for tensile and compression properties and could be used to predict fatigue-induced failure mechanisms.

**Keyword:** Plain woven kenaf; Kevlar fabric; Mechanical; Cyclic loading; Morphological; Fatigue properties